



Antimicrobial Stewardship:

Arizona Partnerships Working to Improve the Use of Antimicrobials in the Hospital and Community

Part 10

“Antibacterials – indeed, anti-infectives as a whole – are unique in that misuse of these agents can have a negative effect on society at large. Misuse of antibacterials has led to the development of bacterial resistance, whereas misuse of a cardiovascular drug harms only the one patient, not causing a societal consequence.”

- Glenn Tillotson; Clin Infect Dis. 2010;51:752

“...we hold closely the principles that antibiotics are a gift to us from prior generations and that we have a moral obligation to ensure that this global treasure is available for our children and future generations.”

- David Gilbert, et al (and the Infectious Diseases Society of America). Clin Infect Dis. 2010;51:754-5

A Note To Our Readers and Slide Presenters

The objectives of the Subcommittee on Antimicrobial Stewardship Programs are directed at education, presentation, and identification of resources for clinicians to create toolkits of strategies that will assist clinicians with understanding, implementing, measuring, and maintaining antimicrobial stewardship programs.

The slide compendium was developed by the Subcommittee on Antimicrobial Stewardship Programs (ASP) of the Arizona Healthcare-Associated Infection (HAI) Advisory Committee in 2012-2013.

ASP is a multidisciplinary committee representing various healthcare disciplines working to define and provide guidance for establishing and maintaining an antimicrobial stewardship programs within acute care and long-term care institutions and in the community.

Their work was guided by the best available evidence at the time although the subject matter encompassed thousands of references. Accordingly, the Subcommittee selectively used examples from the published literature to provide guidance and evidenced-based criteria regarding antimicrobial stewardship. The slide compendium reflects consensus on criteria which the HAI Advisory Committee deems to represent prudent practice.

Disclaimers

All scientific and technical material included in the slide compendium applied rigorous scientific standards and peer review by the Subcommittee on Antimicrobial Stewardship Programs to ensure the accuracy and reliability of the data. The Subcommittee reviewed hundreds of published studies for the purposes of defining antimicrobial stewardship for Arizonan clinicians. The Arizona Department of Health Services (ADHS) and members of its subcommittees assume no responsibility for the opinions and interpretations of the data from published studies selected for inclusion in the slide compendium.

ADHS routinely seeks the input of highly qualified peer reviewers on the propriety, accuracy, completeness, and quality (including objectivity, utility, and integrity) of its materials. Although the specific application of peer review throughout the scientific process may vary, the overall goal is to obtain an objective evaluation of scientific information from its fellow scientists, consultants, and Committees.

Please credit ADHS for development of its slides and other tools. Please provide a link to the ADHS website when these material are used.

Introduction to Slide Section

Reasons to Optimize Antibiotic Use

Pathways to a Successful ASP

Antimicrobial Stewardship: Making the Case

ASPs: Nuts & Bolts

Antimicrobial Stewardship: Measuring
Antibiotic Utilization

Antimicrobial Stewardship: Daily Activities

Antimicrobial Stewardship: Computerized &
Clinical Decision Support Services

Microbiology: Cumulative Antibigram &
Rapid Diagnostics

Antimicrobial Stewardship Projects:
Initiation & Advanced

Antimicrobial Stewardship Barriers &
Challenges: Structural & Functional

Antibiotic Use in the Community

Opportunities to Justify Continuing the ASP

Antimicrobial Stewardship: Perspectives to
Consider

Summary

- **Preface:**

Parts 10 and 11 include discussion of barriers. This slide section deals with the structure and function of the ASP – resources, knowledge of antimicrobials, and a culture reluctant to accept or continue the ASP. A brief history of identifying barriers is provided (references by Pope and Trivedi) . However, several scenarios which may become barriers are discussed as well as the need for effective and accurate communication.

- **Content:**

10 slides with 1 additional slide

- **Suggestions for Presentation:**

The section may be best applied as self-learning., or preparation for the barriers which will come.

- **Comments:**

Slide section 12 may be an adjunct to this section.

ANTIMICROBIAL STEWARDSHIP BARRIERS AND CHALLENGES: STRUCTURAL & FUNCTIONAL

Common Barriers

- Lack of resources
 - Staffing: Pharmacist and/or physician champion availability
 - ID staff willingness to participate may be due to
 - Lack of time
 - Lack of compensation for stewardship activities
 - Fear of antagonizing colleagues and decrease in referrals
 - Funding
 - IT resources
- Clinical/Knowledge Base
 - Consistency between stewardship and ID recommendations
 - Lack of appreciation for the development of drug resistance
- Culture
 - Antimicrobial stewardship is not a priority
 - Perceived loss of prescriber autonomy
 - Opposition to change from administration and/or prescribers

Current Antibiotic Stewardship Programs: Barriers to Effective ASPs

- Two month electronic survey (2008) sent to US hospital practitioners
- 357 responses
- Hospitals without ASPs identified several barriers (178 respondents):
 - Personnel shortages (55%)
 - Financial considerations (36%)
 - Higher-priority clinical initiatives (34%)
 - Opposition from prescribers (27%)
 - Resistance from administration (14%)
 - Other barriers (19%)

However, in this survey, only 26% of hospital ASP programs monitored clinical outcomes, such as mortality and length of stay; rather, focus was on direct drug expenditures and pharmacy savings

Barriers: A Survey of California Hospitals

- Web-based survey of general acute care hospitals in California
- 233 of 422 hospitals (53%) responded
- 50% of hospitals reported a current ASP and 30% were in planning stages
- 20% of hospitals reported no planned ASP and described barriers
- Of 135 responding hospitals, 22% reported that Senate Bill 739 influenced initiation of an ASP

Barrier	Percent Respondents
Staffing constraints	47%
Lack of funding	42%
Lack of initiation of formal proposal	42%
ASP is not a priority	24%
No administrative support	18%
No medical staff support	18%

Barriers...Perceived and Real: Infectious Diseases Pharmacist

- Dilemma
 - The number of “ID-trained” clinical pharmacists doesn’t match the demand, nor do the number of training programs
 - Requiring completion of a post-graduate ID training program to administer stewardship would be an impediment at present
- Possible solutions:
 - Financial and administrative support for in-house and external programs and training
 - Programs developed by professional organizations
 - “Tool kits” to direct baseline activities and enhance existing ones
 - Best practice sharing (e.g. round tables, web-based)
 - Partner with other clinical pharmacy specialist colleagues and/or staff pharmacist to accomplish any or all components

Barriers...Perceived and Real: Front End/Prior Approval

- Possible delays in “appropriate” therapy¹
 - Lack of “dedicated approver” may increase response time to approval
 - Empirically prescribe “unrestricted” antibiotics to circumvent but may be “inappropriate”
 - Overall increase in time from decision to treat → medication administered
 - Requires process to be monitored
- Possible Solutions
 - Monitor the process for delays
 - Antibiotic order forms incorporating restriction criteria

Transmittal of Information:

The Importance of Accurate Information

- Prior approval systems may be used in ASPs, requiring that approval be obtained from ASP practitioners before certain antimicrobials can be used
- The effectiveness of a prior approval system depends on the accuracy of the patient data communicated from the primary service
 - Inaccurate communications were defined as clinically significant discrepancies between communication data elements abstracted from the form documenting the call to the ASP and data in the medical record, with the medical record as the gold standard
 - Clinically significant discrepancies were those likely to influence antimicrobial prescribing
- Inaccurate communication of patient data during telephoned interactions requesting approval from ASP practitioners were common
 - Overall 39% of calls contained an inaccuracy in at least 1 type of patient data
 - Most frequent inaccuracies included current antibiotics (12.9%) and microbiological data (11.9%)

Clinically significant differences in information provided on the call which was inaccurate is likely to affect antimicrobial(s) prescribed

Unintended Consequences of Restrictive Formularies

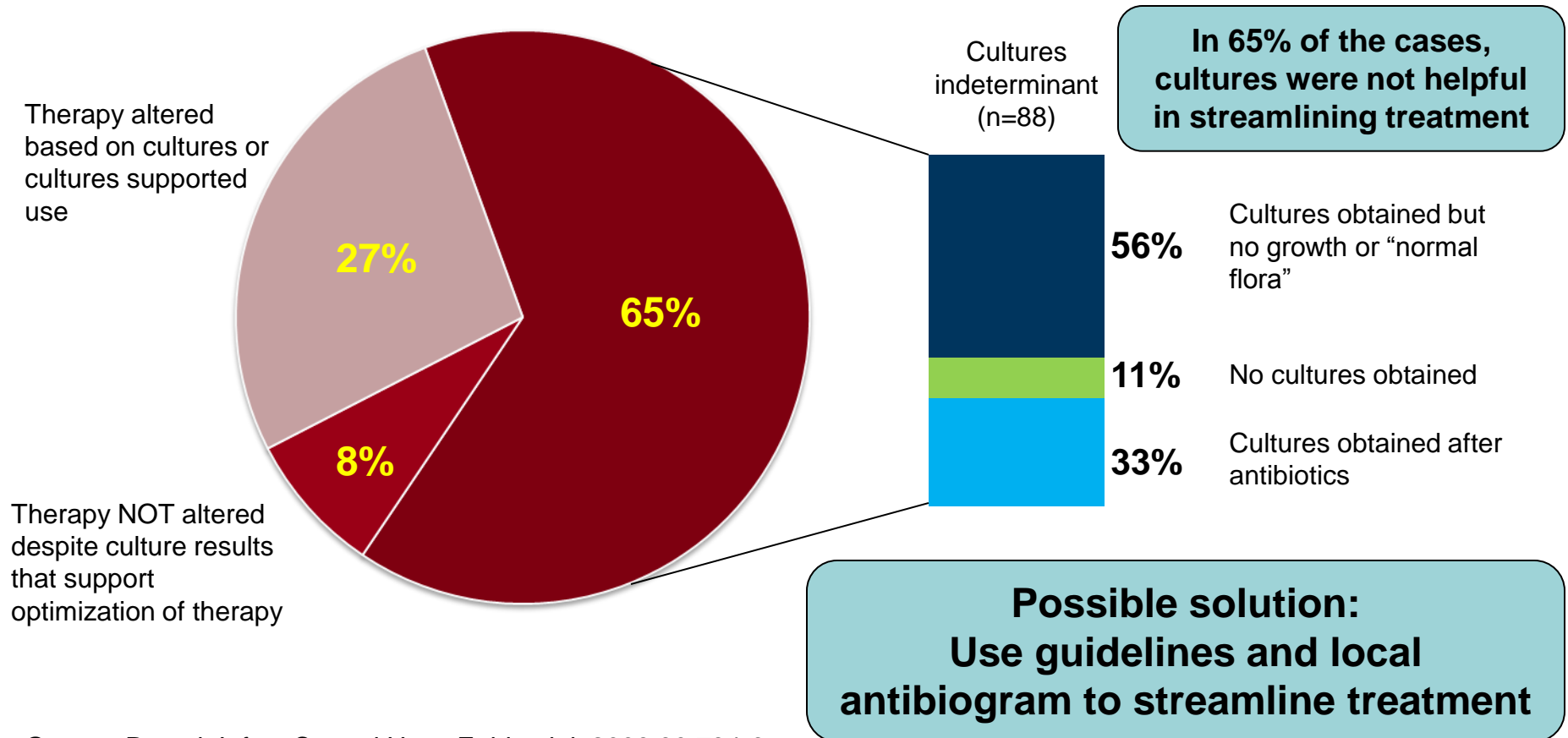
- If ASP operations is restricted to certain on-service hours, prescribers may wait until off-hours to order restricted antibiotics¹
 - Possible solution: Monitor prescriptions and adjust ASP strategy if needed
- Restrictive formularies may encourage creativity when prescribers want to circumvent restrictions
 - Example: If meropenem is restricted, coverage of ESBLs plus *P.aeruginosa* may result in prescribing a combination of two formulary antibiotics, such as ertapenem plus tobramycin
 - Possible solution: Review antibiotic use and educate providers
- Creates animosity between ASP and senior prescribers who may value decision-making autonomy rather than giving up this traditional structure²
 - Possible solution: Consider making senior prescribers part of a ASP clinical workgroup

1 LaRosa L et al. Infect Control Hosp Epidemiol.2007 ;28:551-6.

2 Charani E et al.Clin Infect Dis.2011;53(7):651-62.

Challenge: When Cultures Do Not Help

Chart shows whether, in 135 patients who received piperacillin-tazobactam for at least 72 hours and in whom treatment was determined to be appropriate, treatment was altered on the basis of microbiologic culture results. Study was conducted at 4 hospitals affiliated with Emory University, 2003-2005



ADDITIONAL SLIDES

Common Barriers to Antibiotic Stewardship

- Stewardship program barriers
 - Physician autonomy
 - Prescriber lack of appreciation of resistance development
 - Individual patient versus ecological perspective
 - Restriction policies are onerous
 - Can be difficult to encourage streamlining
 - Gatekeeper mentality
 - Need to sustain efforts
 - Consistency among stewardship and ID practitioner recommendations
- ID staff involvement
 - ID staff may not want to assume additional responsibility
 - Disputes regarding “fair and equitable” compensation
 - In a recent EIN survey, only 18% of 502 respondents received any remuneration
 - Fear of antagonizing colleagues in other specialties leading to decreased consultation
 - Perceived “conflict of interest”